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VIBRATION INSTRUMENT CALIBRATION METHOD AND APPARATUS

Darlene Turner
Serial No.: 10/629,445
Page 1 of 11

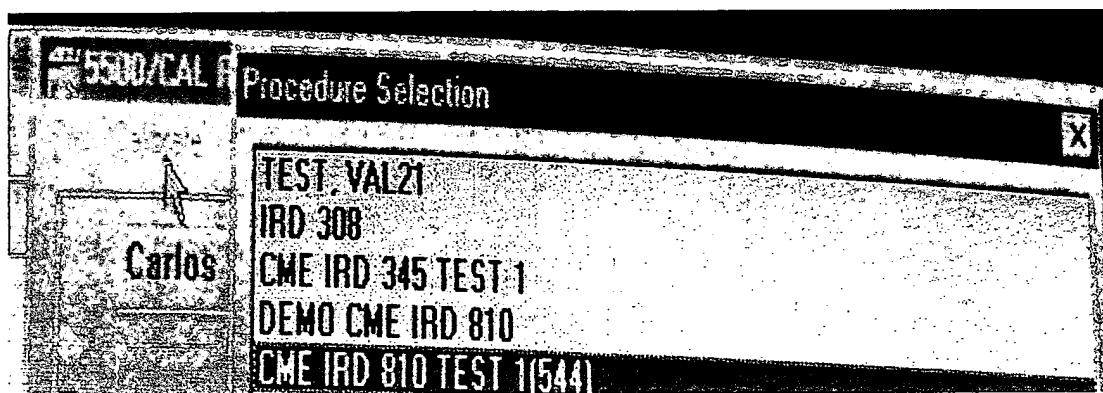


FIG.1

VIBRATION INSTRUMENT CALIBRATION METHOD AND APPARATUS

Darlene Turner
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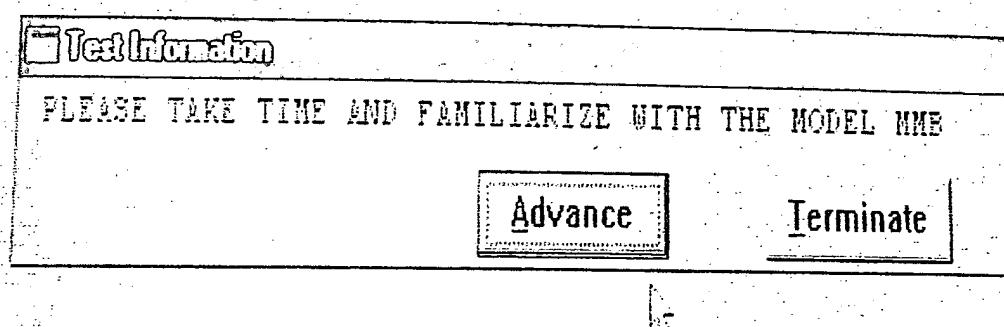


FIG.2

VIBRATION INSTRUMENT CALIBRATION METHOD AND APPARATUS

Darlene Turner

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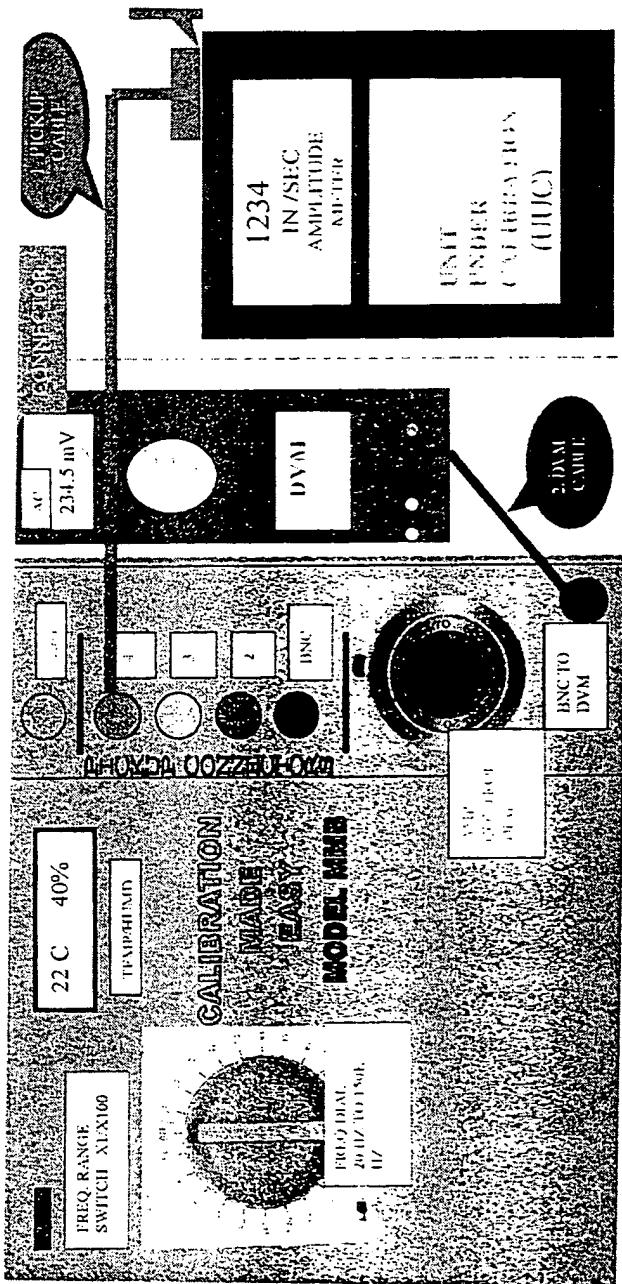


FIG. 3

VIBRATION INSTRUMENT CALIBRATION METHOD AND APPARATUS

Darlene Turner

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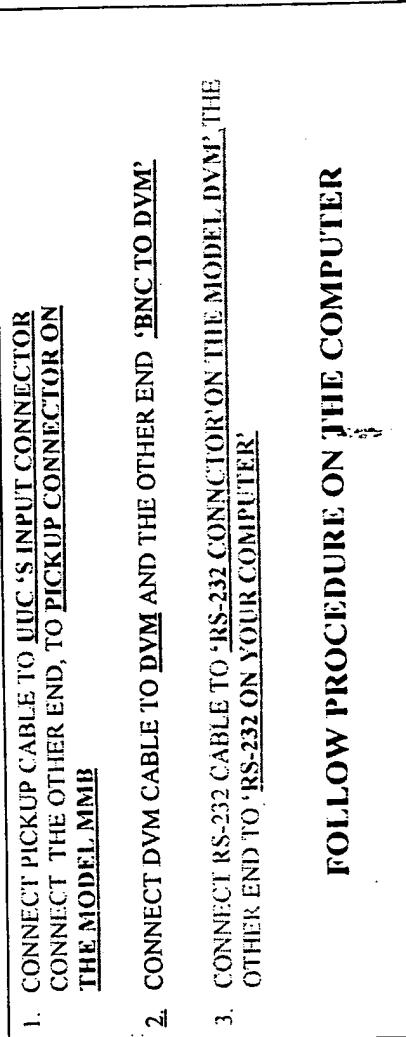
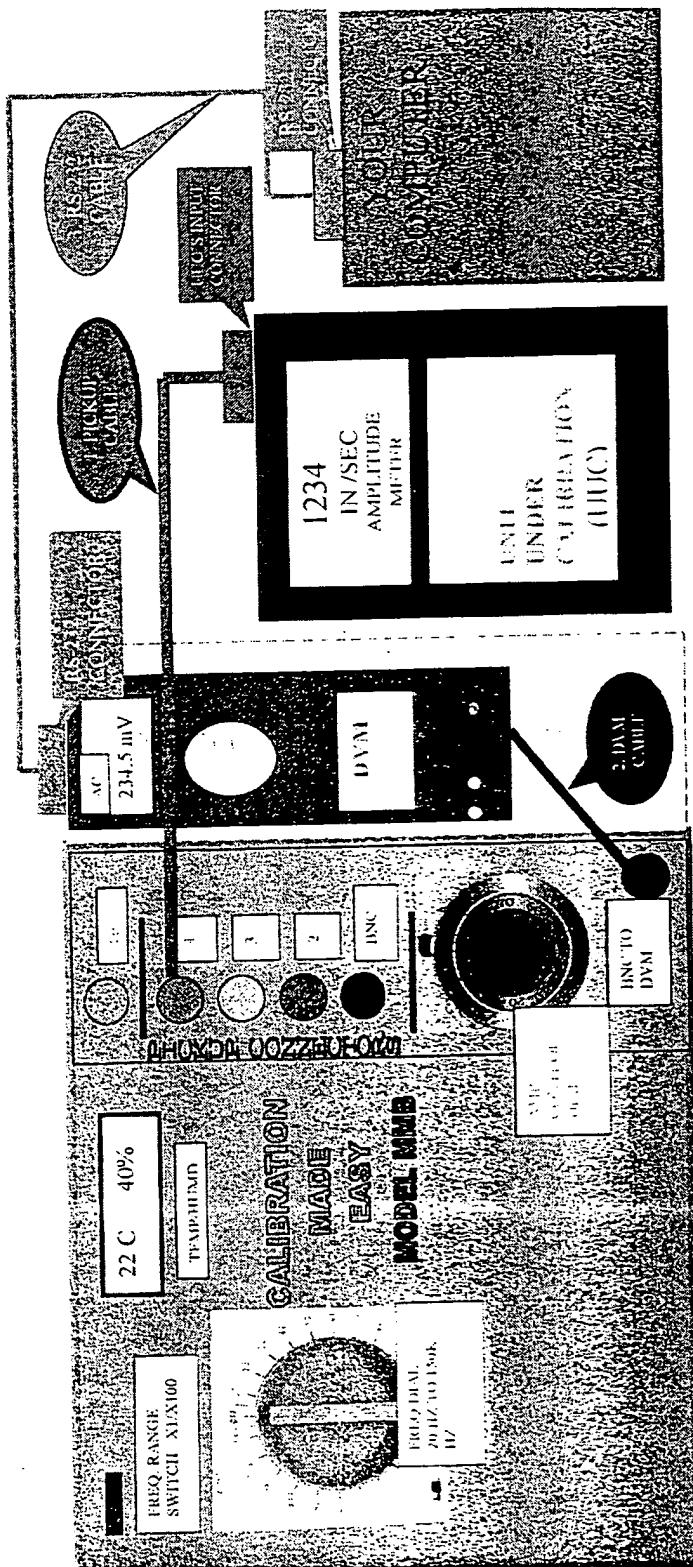


FIG.4

VIBRATION INSTRUMENT CALIBRATION METHOD AND APPARATUS

Darlene Turner

Serial No.: 10/629,445

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Calibration Results VIBRATION ANALYSIS LIMITED

JUT: ICP 328F01
ACCELEROMETER
Serial No: 27024
Asset No. 891111R

Notes

VIBRATION ANALYSIS LIMITED	
UUT:	ICP 328F01 ACCELEROMETER Serial No: 27024 Asset No. 69111R
Notes:	
 PASS	
Result	PASS
Performed on:	3/10/02 at 12:18:00
Performed by:	DARLENE TURNER
Environment:	Temp. 26.2°C Humid. 37 %
Condition F/L:	FOUND-LEPT
Procedure Completed.	

Standards Used		Test Data		Cntr. Data		Out Data	
Asset	Model	Test ID	Description	Cntr. Date	Out Date	Cntr. Date	Out Date
VALTE108	FLUKE 87	87	DVM	10-Sep-01	10-Sep-02		
0074	DYNAMIC 01-803		TRANSDUCER TESTER	11-Apr-01	11-Apr-02		
66001183	ENTERKIRK 870	870	STANDARD TRANSDUCER	18-Jan-02	17-Jan-03		
66004138	ENTERKIRK 644	644	STANDARD TRANSDUCER	18-Jan-02	17-Jan-03		

TOLERANCE +/- 5%	
READING IN ACC	
1	15.0 Hz test
1	100mV @ 10Hz
2	50.0 Hz test
2	100mV @ 50Hz
3	100.0 Hz test
3	100mV @ 100Hz
4	500.0 Hz test
4	100mV @ 500Hz
5	1000.0 Hz test
5	100mV @ 1000Hz

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FIG. 5

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FIG. 5

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VIBRATION INSTRUMENT CALIBRATION METHOD AND APPARATUS

Darlene Turner
 Serial No.: 10/629,445
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Calibration Results GRB ENTERPRISE

Test Data		FAIL																																																																																																																																											
UUT: FLUKE 87 DVM Serial No: VALTE108 Asset No. VALTE108	Notes:	Result: FAIL	8/10/03 at 08:52:00																																																																																																																																										
		Performed on:	Carrie R. Hill																																																																																																																																										
		Performed by:	Environment																																																																																																																																										
		Condition F/L	Temp. 23.5°C																																																																																																																																										
		Procedure Completed:	Humid. 40 % FOUND-LEFT																																																																																																																																										
<table border="1"> <thead> <tr> <th>Standard Used</th> <th>Asset</th> <th>Model</th> <th>Description</th> <th>Cal. Date</th> <th>Due Date</th> </tr> </thead> <tbody> <tr> <td>TEST#</td> <td>TEST#</td> <td>TEST#</td> <td>UNIT ORDER TEST</td> <td>ERROR 1.5</td> <td>TEST#</td> </tr> <tr> <td>TEST#</td> <td>TEST#</td> <td>TEST#</td> <td>TEST#</td> <td>TEST#</td> <td>TEST#</td> </tr> <tr> <td colspan="6">Asset # or Serial # of MODEL M8</td> </tr> <tr> <td colspan="6">ABCD1234</td> </tr> <tr> <td colspan="6">05/10/03</td> </tr> <tr> <td colspan="6">Asset # or Serial # of Transducer 1</td> </tr> <tr> <td colspan="6">H3456789</td> </tr> <tr> <td colspan="6">Asset # or Serial # of Transducer 1</td> </tr> <tr> <td colspan="6">544</td> </tr> <tr> <td colspan="6">Asset # or Serial # of Transducer 2</td> </tr> <tr> <td colspan="6">G123456</td> </tr> <tr> <td colspan="6">Asset # or Serial # of Transducer 2</td> </tr> <tr> <td colspan="6">577</td> </tr> <tr> <td colspan="6">BAW SIGNAL CHECK</td> </tr> <tr> <td colspan="6">Result of Operator Evaluation</td> </tr> <tr> <td colspan="6">READING IN DSDP</td> </tr> <tr> <td colspan="6">100.0 Hz test</td> </tr> <tr> <td colspan="6">.9 to 1.0</td> </tr> <tr> <td colspan="6">Result of Operator Evaluation</td> </tr> <tr> <td colspan="6">3 AC 0.015 V</td> </tr> <tr> <td colspan="6">50.0 Hz test</td> </tr> <tr> <td colspan="6">End of Test Data</td> </tr> </tbody> </table>				Standard Used	Asset	Model	Description	Cal. Date	Due Date	TEST#	TEST#	TEST#	UNIT ORDER TEST	ERROR 1.5	TEST#	Asset # or Serial # of MODEL M8						ABCD1234						05/10/03						Asset # or Serial # of Transducer 1						H3456789						Asset # or Serial # of Transducer 1						544						Asset # or Serial # of Transducer 2						G123456						Asset # or Serial # of Transducer 2						577						BAW SIGNAL CHECK						Result of Operator Evaluation						READING IN DSDP						100.0 Hz test						.9 to 1.0						Result of Operator Evaluation						3 AC 0.015 V						50.0 Hz test						End of Test Data											
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FIG.6

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VIBRATION ANALYSIS LIMITED

*Certificate of
Calibration*

3600 SUNBURY RD.
COLUMBUS, OH 43219
1-800-350-4988
614-476-0740
FAX 614-476-0784
www.vibrationcalibration.com

DRAFT

**3600 SUNBURY RD.
COLUMBUS, OH 43219
1-800-350-4988
614-476-0740
FAX:614-476-0784
www.vibrationsanalysis.net**

For Instrument: ICP 328F01 **Description:** ACCELEROMETER

VIBRATION ANALYSIS LIMITED TESTING SERVICES HEREBY CERTIFIES THAT:
The above described instrument met or exceeded all published specifications at the time of calibration specified below, and has been calibrated using standards whose accuracies are traceable to the National Institute of Standards and Technology (NIST) within the limitations of the Institute's calibration services, or have been derived from accepted values or physical constants, or have been derived by ratio or self calibration techniques. All test are performed with a TUR (Test Uncertainty Ratio) of 4:1 unless otherwise specified. All calibration activities performed in compliance with
ANS/INCIL 2540, ISCG/GUIDE 25, AND MIL-STD-45662A.

CALIBRATION INFORMATION					
Cal Date	Time	3/10/02 14:20:00	Temperature	26.20°C	Company
Run#	Cal Date	2/28/03	Humidity	37 %	Address
Pass	Y	Tech: DARLENE TURNER	C/S/Z	PO#	
Serials	OK	Y			
Cal Procedure	ICP ACCELEROMETER		Revision	1.0	Cal. Date
Std. Asset Number	Mfg	Model	Description		Due Date
VALTE 108	FLUKE	87	DVM	9/10/01	9/10/02
0074	DYNAMIC	DL803	TRANSDUCER TESTER	4/1/01	4/17/02
9801183	ENTEK/IRD	970	STANDARD TRANSDUCER	1/19/02	1/17/03
9801184	ENTEK/IRD	544	TRANSDUCER	1/19/02	1/17/03

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FIG. 7

VIBRATION INSTRUMENT CALIBRATION METHOD AND APPARATUS

Darlene Turner
 Serial No.: 10/629,445
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EXAMPLE

GRB ENTERPRISE																																													
<report substitution mt_user1>																																													
<report substitution mt_user2>																																													
Failed Calibration Report																																													
DRAFT																																													
For Instrument:	FLUKE 87																																												
Description:	DVM																																												
Asset Number:	VALTE106																																												
Serial Number:	VALTE106																																												
<p>GRB ENTERPRISE hereby certifies that... the above described instrument met or exceeded all published specifications at the time of calibration specified below, and has been calibrated using standards whose accuracies are traceable to the National Institute of Standards and Technology (NIST) within the limitations of the Institute's calibration services, or have been derived from accepted values or physical constants, or have been derived by ratio or self calibration techniques. All calibration activities performed are in compliance with MIL-STD-46862A.</p>																																													
CALIBRATION INFORMATION <table border="1"> <tr> <td>Cal Date</td> <td>Time</td> <td>Temperature</td> <td>Shop</td> </tr> <tr> <td>2/26/03</td> <td>04:22:00</td> <td>23.50°C</td> <td>Work Order</td> </tr> <tr> <td colspan="2">Next Cal Due</td> <td>Humidity</td> <td></td> </tr> <tr> <td colspan="2">3/26/03</td> <td>40 %</td> <td></td> </tr> <tr> <td colspan="2"></td> <td></td> <td></td> </tr> <tr> <td>Tech</td> <td>Carlos R. Hill</td> <td colspan="2"></td> </tr> <tr> <td>Pass</td> <td></td> <td colspan="2"></td> </tr> <tr> <td>Sents OK</td> <td>Y</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">Note</td> <td colspan="2"></td> </tr> <tr> <td colspan="4">Cal Procedure: GME IRD 810 TEST 1(B44)</td> </tr> <tr> <td colspan="4" style="text-align: right;">Revision 1.0</td> </tr> </table>		Cal Date	Time	Temperature	Shop	2/26/03	04:22:00	23.50°C	Work Order	Next Cal Due		Humidity		3/26/03		40 %						Tech	Carlos R. Hill			Pass				Sents OK	Y			Note				Cal Procedure: GME IRD 810 TEST 1(B44)				Revision 1.0			
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STANDARDS USED FOR CALIBRATION <table border="1"> <tr> <td>Serial Number</td> <td>MIU</td> <td>Model</td> <td>Description</td> <td>Cal Date</td> <td>Due Date</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		Serial Number	MIU	Model	Description	Cal Date	Due Date																																						
Serial Number	MIU	Model	Description	Cal Date	Due Date																																								

Signed: _____

FIG.8

Final Validated Calibration Results GRB ENTERPRISE

UUT: ENTEKIRD DATAPAC 1600
DATA COLLECTOR
Serial No: 8808398
Asset No: 080

Notes:

VIBRATION INSTRUMENT CALIBRATION METHOD AND APPARATUS
Darlene Turner
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EXAMPLE

FIG 9

EXAMPLE

FINAL VALIDATED
Certificate of
Calibration

33600 SUNBURY RD.
COLUMBUS, OH 43219
614-476-6839
1-800-350-4988
FAX: 614-476-0784
www.calibrationmadeeasy.com

For Instrument: _____ ENTEK\IRD DATAPAC 1500

DATA COLLECTIONS

Asset Number: 080 Serial Number 9909396

GRB ENTERPRISE, HEREBY CERTIFIES THAT:

The above described instrument, that or exceeded all published specifications at the time of calibration as specified below, and has been calibrated using standards whose accuracies are traceable to the National Institute of Standards and Technology (NIST) within the limitations of the Institute's calibration services, or have been derived from accepted values or physical constants, or have been derived by ratio or brief calibration techniques. All test are performed with a TUR (Test Uncertainty Ratio) of 4:1 unless otherwise specified. All calibration activities performed are in compliance with ANSI/NCSL Z540, ISO/GUIDE 17025, QS-9000, ISO-9001 and MIL-STD-45562A.

CALIBRATION INFORMATION

Dated Signed: _____	Tested by: _____
_____	Validated by: _____
_____	Approved by: _____

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FIG. 10

VIBRATION INSTRUMENT CALIBRATION METHOD AND APPARATUS
Darlene Turner
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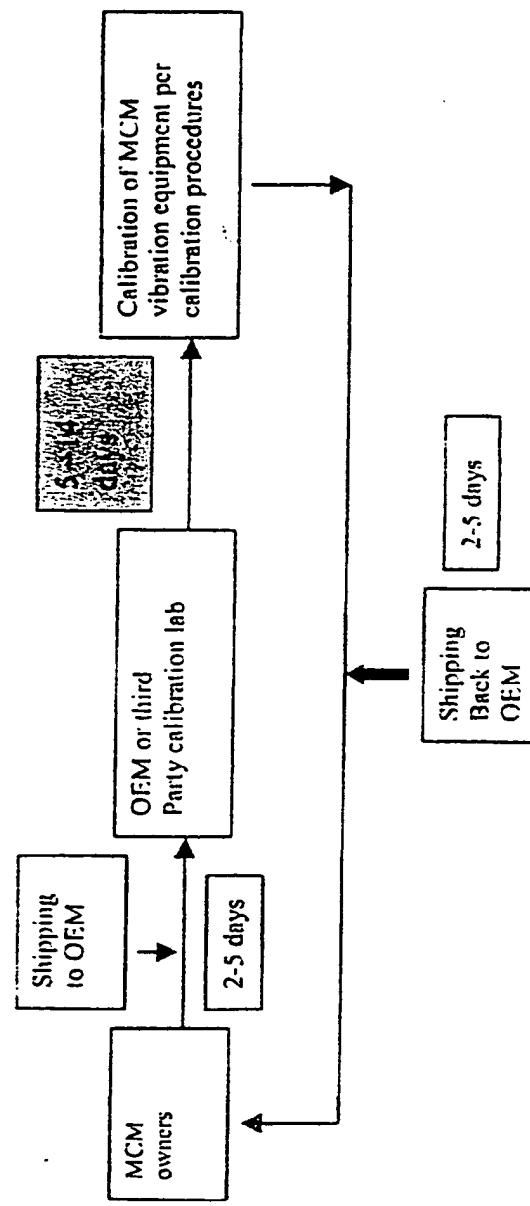


FIG. 11